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# Eradicating Cattle Scabies

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Advanced lesions of common (Psoroptic) scabies.



Taking skin scrapings for common scab mites.

# Eradicating Cattle Scabies

Scabies is a contagious skin disease of cattle. The disease is produced when tiny parasitic mites pierce the animal's skin to feed. Discharge from the mite wound oozes onto the surface of the skin and forms scabs or crusts. At times, the affected areas also become infected with bacteria.

Cattle with scabies lick, rub, and scratch themselves to relieve intense itching. They lose weight and condition. Occasionally, animals die from heavy infestations by scabies mites.

Cattle scabies can be eradicated by treating affected and exposed cattle with chemicals that kill the mites. Cooperative State-Federal eradication programs using such treatments have eliminated cattle scabies from large sections of the United States. The U.S. Department of Agriculture and the States now are cooperating to complete the eradication of psoroptic cattle scabies.

## Mites That Cause Scabies

Cattle scabies may be caused by one of five genera of mites: Psoroptes, Sarcoptes, Chorioptes, Psorergates, and Demodex.

Demodetic scabies, caused by the Demodex mite, will not be discussed in this publication because there are no organized control programs for this disease at the present time. For information on this type of scabies, see Leaflet 438, "Demodetic Mange in Cattle." Single copies are available by post card request from the U.S. Department of Agriculture, Washington, D.C. 20250.

Each type of cattle scabies is identified by the name of the mite that causes it. Thus psoroptic scabies is caused by the Psoroptes mite; sarcoptic scabies by the Sarcoptes mite; chorioptic scabies by the Chorioptes mite; and psorergatic scabies by the Psorergates mite.

All cattle are susceptible to all kinds of scabies. Cattle may be infested with more than one species of scabies mites at one time.

Since psoroptic, sarcoptic, chorioptic, and psorergatic cattle scabies can be eradicated by the same treatment, they are discussed together in this publication. The time interval between treatments for psorergatic scabies, however, is longer than for the three other kinds of scabies.

Psoroptic, sarcoptic, and chorioptic mites are similar in appearance—adults are eight-legged, oval-shaped, whitish parasites. All are barely visible to the unaided eye. The mites are more easily found if scrapings from an affected animal's skin are placed on a dark background and magnified under a hand lens.

Psorergatic mites are much smaller than other parasitic mites and are more difficult to find and identify.

Mites spend their lives in and on the skin of the host animal. They require 10 to 12 days to complete their life cycles. Off the host, mites generally survive only a few days. The chorioptic mite is more active and moves more rapidly than the psoroptic or sarcoptic mite.

## Spread of Cattle Scabies

Direct contact is the most common means of spreading scabies from one animal to another. Scabies-causing mites are also transmitted by infested pens, barns, blankets, brushes, and similar equipment. Often they are unintentionally spread when affected animals are sold or exchanged.

Ordinarily, scabies does not spread from one species of animal to another species. For example, cattle scabies does not spread to sheep.

Dairymen and other persons working closely with livestock may get scabies—particularly sarcoptic scabies—from animals. The mites may cause great discomfort. Consult a physician for treatment.

Cattle do not develop an immunity to scabies. Most animals—whether or not they have already had scabies—readily develop the disease when exposed to scabies mites.

## Signs of Scabies

A "scabby" appearance is the best known sign of scabies. Typical lesions are hard, thick, and gray in color. In advanced cases, scabs may cover large areas of the animal's body.

It is difficult to detect the disease in its early stages before the mites are well established. Affected cattle may seem restless; their hair may be disturbed from increased licking and rubbing. These may be the only signs of scabies until the scabs form.

As scabby areas enlarge, the skin may become raw from rubbing and scratching. Itching is usually more intense in psoroptic and sarcoptic scabies than in chorioptic or psorergatic scabies.

Affected animals lose hair from scabby areas, and the skin thickens and hardens. Milk production drops. Severely affected cattle stop eating and lose weight or gain less; if not treated, they may die.

## How Scabies Develop

Scabies may occur at any time of the year. Because the mites are most active in fall and winter, scabies is sometimes mistaken for a cold weather disease.

In summer, when the mites are less active, scabs often disappear. Scabby cattle may



Skin lesions of chorioptic scabies.

appear "cured." The improvement, however, is only temporary. If the disease is not detected and treated during the summer, scabs will come back with the return of cold weather.

Scabs normally begin to form 15 to 45 days after the mites get on the host animal. If the mites are not killed, they may spread and form scabs over the entire body of the animal.

## Psoroptic Scabies

The psoroptic mites that cause this form of scabies usually first attack cattle where the hair is thick—the withers, the back, or the tailhead. Serum oozes from mite wounds and hardens into yellow or gray scabs. Frequently these scabs are blood stained.

Skin at the edge of an active lesion is swollen, moist, and red. Scabs enlarge as the mites continue to move outward and feed on healthy skin. Hair gradually disappears from scabby areas, and the skin becomes thick, corrugated, and dry.

## Chorioptic Scabies

Chorioptic mites may attack any part of an animal's body, but they often produce lesions on the escutcheon first. Wounds are small. Skin under the thin scabs is only slightly swollen and inflamed.

The lesions produced by chorioptic mites are not noticeable until the disease is well advanced. As hair is rubbed off, the skin appears thick, wrinkled, and ridged.

## Sarcoptic Scabies

Sarcoptic mites pierce and burrow into the upper layer of the animal's skin. After mating, the female mite lays eggs in this burrow.

Normally, sarcoptic scabies develops on the escutcheon and on the inner surfaces of the thighs, but the mites may also attack other surfaces of the body.

As the imbedded mites feed, yellow beads of dried serum form on the reddened, swollen skin over the burrows. Diseased areas enlarge as the mites multiply.

In scabby areas, most of the animal's hair drops out or is rubbed off, but a few hairs over the affected part are held erect by dried

serum and scabs. Cattle develop thick, deeply wrinkled skin. In chronic cases, virtually the entire body of the animal may be affected.

## Psorergatic Scabies

The mites that cause psorergatic scabies are much smaller than other scabies mites. Although they penetrate the skin for feeding on any part of the animal's body, psorergatic mites are extremely difficult to collect and identify. The best sites for taking scrapings from cattle are the neck, shoulders, and sides.

Psorergatic scabies cause loss of hair and thickening and drying of the skin. Lesions may disappear while the mites are still on the animal.

## Observing Cattle for Scabies

Make a practice of observing cattle regularly for signs of scabies. Select a location where you can watch the animals without disturbing them.

If you notice restlessness, scratching, rubbing, lesions, or other signs of scabies, examine animals individually. Isolate cattle that have scabies. Consult your veterinarian or a State or Federal disease-control official promptly for expert inspection, diagnosis, and advice.

## Finding The Mites

A thorough examination of suspect cattle should be made by someone familiar with scabies and experienced in taking scrapings from animals. This is the only way to isolate the mites that cause the disease. An inexperienced person often fails to find the mites.

To find the parasites, the examiner usually scrapes the outer edge of a scabby area with a blunt-edged knife. To find sarcoptic mites in their burrows within the skin, he must scrape deeply enough to ooze blood from the scraped area. Then he places these scrapings on a piece of dark carbon paper in warm sunlight or in bright light near artificial heat.

If the live mites are present in sufficient numbers, they will be seen as tiny white or gray objects moving over the dark paper. A



Inspecting edges of lesions for scab mites.

hand lens will make it easier to see the parasites.

Field identification of mites should be verified by a diagnostic laboratory. The psorergatic mite, for example, is so tiny that it is invisible to the unaided eye. To identify mites that cannot be seen by visual examination, be sure to submit ample skin scrapings to the laboratory.

Laboratories use the maceration-flotation method to help isolate any mites or ova in the scrapings.

If you find mites on your cattle or if you suspect scabies in your herd, call your veterinarian or notify State or Federal disease-control officials.

## Treatment

Certain miticides (mite killing chemicals) are permitted for treating cattle with scabies. In 1979, these included certain proprietary brands of organophosphorus, chlorinated hydrocarbon, and lime-sulfur. If used properly, these chemicals will kill the mites without injuring the cattle.

Lime-sulfur is the only permitted miticide that has proved effective against the psorergatic mite.

Every animal in an affected or exposed herd should be treated. If a single affected animal is not treated, it could spread the disease to the entire herd.

Infected herds should be treated as soon as possible after scabies is diagnosed. Cattle

can be treated successfully at any time of the year—even when the weather is extremely cold.

## Methods of Treatment

Permitted miticides are applied under the supervision of a State or Federal inspector or veterinarian. Before starting treatment, see "Precautions" on page 12.

**Cattle may be treated by:**

■ Dipping. Cattle are dipped in large vats. Animals should be soaked to the skin when submerged in the dipping bath.

■ Spray-dipping. Only box-type spray dipping machines are approved for this type of treatment. Jet spray heads are arranged above, below, and on both sides of a chute that holds the animal. The machine should soak the animal to the skin with several short bursts of spray. Make sure that each animal is held under the spray for a total of at least 1 minute. Orchard sprayers, hand sprayers, and similar equipment are not approved for treating cattle affected by scabies.

After proper treatment, cattle rapidly recover from the disease.

## Number of Treatments

Under Federal laws, cattle affected with scabies can move interstate for any purpose after two supervised dips given at 10- to 14-day intervals.

Cattle affected with Psorergates mites should be dipped the second time within 14 to 21 days after the first dip. Affected cattle can move interstate for immediate slaughter after one treatment, if the treatment is with a permitted dip that does not require a holding period prior to slaughter.

Exposed cattle can move interstate for any purpose after one treatment with a permitted chlorinated hydrocarbon or lime-sulfur dip or two treatments with permitted organophosphorus dips. Under specified conditions, explosed cattle that have been certified as not having scabies may be shipped interstate for immediate slaughter. Authorized inspectors who certify animals can advise owners about such interstate shipments.



Dipping cattle for scabies.

## Handling Cattle

Make sure that cattle are handled carefully throughout treatment. Observe all precautions listed on page 12.

Examine chutes, pens, and other equipment before bringing cattle to the treatment area. Remove nails, broken boards, or other objects that could injure animals.

Water and feed cattle 2 to 4 hours before treatment. Have clean feed and water ready following treatment.

Allow cattle to rest and cool off after they are treated.

**When animals are to be dipped—**

■ Treat lesions by hand before animals enter the dipping vat. Break up hard scabs with fingers or a brush so the dip can reach the mites, then soak the affected parts thoroughly with freshly mixed dip. Sometimes, hand treatment of lesions while animals are in the dipping vat is more practical than pretreatment.

■ With a dipping fork, submerge each animal's head momentarily in the dip at least once.

**When cattle are to be spray dipped—**

- Break up large lesions with a scraper and use a hose attachment to soak lesions thoroughly with a properly mixed dip before animals enter the spray-dipping area.
- Be sure all spray heads are operating so that each animal treated is thoroughly soaked.

## Cleaning and Disinfecting

If mites are found in a herd, all grounds, barns, corrals, and other areas used by affected cattle should be thoroughly cleaned and disinfected.

Remove all litter, manure, and bedding that may contain mites. Spray all exposed surfaces of buildings with a recommended dip or disinfectant.

Clean and disinfect all pens and barns before returning treated cattle to them. Mite-free cattle can safely occupy premises or buildings that have been property disinfected.

## Eradication Programs

Cooperative State-Federal eradication programs reduced the number of sarcoptic cattle scabies to a very limited number in the late 1960's and brought the incidence of psoroptic cattle scabies down to 49 outbreaks during the same period. Early in the 1970's, however, psoroptic cattle scabies outbreaks increased dramatically and have resulted in an all-out effort being directed against the disease in many of the midwestern cattle-producing States. Additional resources have been added and import rules have been strengthened to help curb the spread of this dreaded disease of cattle.

Because of scabies, States control the movement of cattle within their borders. Federal laws prohibit the interstate shipping, driving, or moving of cattle that have scabies. Interstate movement is permitted, however, after infected or exposed cattle have been freed of mites by proper treatment and if the cattle have been properly certified.

Your local veterinarian, your State veterinarian, or the Federal veterinarian in charge in your State can give you further information about current eradication programs.

## Precautions

Dips used improperly can be injurious to man and animals. They should be used only at recommended concentrations under carefully controlled conditions. Animals that swallow dip may be poisoned.

Follow the directions and heed all precautions. Handle dip chemicals with care. If anyone swallows the dip, call a physician at once.

Post the telephone number of your local poison control center near the telephone. When calling for help, have label information available.

Avoid unnecessary or prolonged soaking of skin or clothing during dipping. If you spill any dip on your skin, wash it off immediately with soap and water. Call a physician if contact is prolonged or if the contaminated area is extensive.

If you spill dip on your clothing, remove contaminated clothing immediately and wash the contaminated skin thoroughly. Launder the clothing before wearing it again.

After handling a dip, do not eat, drink, or smoke until you have washed your hands and face. Wash any exposed skin immediately after working with a dip.

Keep animals away from the vat except when they are being treated.

Do not drain vats into streams or allow treated cattle to enter streams or ponds for at least 7 days following treatment.

Do not drain vats into streams or places where livestock, fish, or wildlife may come in contact with the discarded chemicals.

Keep dip chemicals in closed, well-labeled containers in a dry place. Store them where they will not contaminate food or feed, and where children and animals cannot reach them.

Do not mix or combine different dip chemicals. Do not put a dip chemical in an empty container which formerly contained a different chemical.

Dispose of empty chemical containers at a sanitary land-fill dump, or crush and bury them in a level, isolated place where they will not contaminate water supplies.

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